

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES ZIECH and MICHAEL CHAMBERLIN

Appeal 2007-2613
Application 10/660,239
Technology Center 3600

Decided: August 31, 2007

Before WILLIAM F. PATE III, MURRIEL E. CRAWFORD, and
HUBERT C. LORIN, *Administrative Patent Judges*.

WILLIAM F. PATE III, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

This is an appeal from the final rejection of claims 1-12, 14, 18, and 20. The Examiner withdrew the rejections of claims 13 and 19 in the Answer. They along with claims 15-17, 21, and 22 stand objected to. These are all the claims in the application.

We have jurisdiction over the appeal pursuant to 35 U.S.C. §§ 6 and 134.

The claimed subject matter is directed to a suspension for a vehicle.

More specifically, the invention is directed to a control arm and a joint that the control arm forms with the axle. This joint comprises elements with inward tapers.

Claim 1, reproduced below, is further illustrative of the claimed subject matter.

1. A suspension for a vehicle comprising:

a control arm configured for connection to a frame of said vehicle and configured to receive an axle, said control arm defining a first sleeve disposed about an axis through which said axle extends, said first sleeve having a radially inner surface that tapers; and

a second sleeve configured to be received within said first sleeve of said control arm and about said axis, said second sleeve having a radially outer surface that tapers complementary to said radially inner surface of said first sleeve.

The references of record relied upon by the examiner as evidence of obviousness are:

Pitzer	US 3,009,747	Nov. 21, 1961
Kittle	US 5,005,913	Apr. 09, 1991
Smith	US 6,491,314 B2	Dec. 10, 2002

Claims 1-3 and 5-7 stand rejected under 35 U.S.C. 103 as being unpatentable over Smith in view of Kittle.

Claims 1-5, 7-12, 14, 18, and 20 stand rejected under 35 U.S.C. 103 as being unpatentable over Smith in view of Pitzer.

ISSUE

The sole issue for our consideration in this appeal is whether the Appellant has established, by a preponderance of the evidence, that the Examiner erred in rejecting claims 1-12, 14, 18, and 20 on the ground of obviousness.

FINDINGS OF FACT

Smith discloses several embodiments of a trailing arm suspension for a vehicle. With reference to Fig. 1 of Smith, Smith discloses a frame 10 with control arm 18 pivotally mounted on the frame at pivot pin 22. At the trailing end of the trailing arm 18, an axle is rigidly fastened to the trailing arm. Smith discloses many embodiments with possibilities for fixing the axle onto the end of the trailing arm. The axle could be square, round or hexagonal with the round axle enclosed in a sleeve. The Examiner directs our attention to the embodiment disclosed in Figs. 47 and 48 which shows the axle 524 encased in a sleeve 544, 548 at the end of the trailing arm and wherein a second sleeve 588 of elastic material is provided around the axle inside the first sleeve 544, 548.

The other circular embodiments of Smith show various weldments holding the two sides of the outer sleeve together. Many of the other embodiments forego an elastomeric sleeve. Thus, it is our conclusion that Smith, in his disclosure of fixing an axle in the rear section of a trailing arm, discloses some examples where the axle is rigidly supported, and discloses some examples where the axle is supported for limited movement as by an elastomeric sleeve. Accordingly, it is our finding that the two methods of axle attachment are art-recognized equivalents that can be used

interchangeably by one of ordinary skill as the circumstances of any particular installation demand.

Kittle discloses a wheel spread adjusting device for a tractor in which the spacing of the rear wheel is adjustable for a given row width in a farmer's field. The examiner directs our attention to tapered surfaces 14a and 14b which interact with tapered surfaces in wheel hub 10 to hold the axle 12 to the wheel hub.

Pitzer discloses a bushing joint of general utility wherein a shaft 28 is connected to a bushing 29 using several separate individual sleeves or split rings 20, 1, 1. The rings have inside and outside tapers, respectively. The connection of Pitzer can either be a rotary connection, or the bushing may serve as a lock to make tight frictional engagement between a journal and a shaft which may approach the tightness of shrink fit. See col. 4, ll. 35-39.

PRINCIPLES OF LAW

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734, 82 USPQ2d 1385, 1391 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966). *See also KSR*, 127 S.Ct. at

1734, 82 USPQ2d at 1391 (“While the sequence of these questions might be reordered in any particular case, the [Graham] factors continue to define the inquiry that controls.”) In *KSR*, the Supreme Court emphasized “the need for caution in granting a patent based on the combination of elements found in the prior art,” *id.* at 1739, 82 USPQ2d at 1395, and discussed circumstances in which a patent might be determined to be obvious. In particular, the Supreme Court emphasized that “the principles laid down in *Graham* reaffirmed the ‘functional approach’ of *Hotchkiss*, 11 How. 248.” *KSR*, 127 S.Ct. at 1739, 82 USPQ2d at 1395 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966) (emphasis added)), and reaffirmed principles based on its precedent that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* The Court explained:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 1740, 82 USPQ2d at 1396. The operative question in this “functional approach” is thus “whether the improvement is more than the predictable use of prior art elements according to their established functions.” *Id.*

ANALYSIS

We will sustain the rejection of claims 1-3 and 5-7 as unpatentable over Smith in view of Kittle.

Apparently, Appellants admit that the tapered relationship in Kittle is intended to prevent any relative movement between the axle and the wheel hub. (See Br. p. 8, ll. 2-4). Appellants' argument is that Smith, in contrast, teaches a suspension in which slight movements of the axle with respect to the trailing arm are permitted due to the elastomeric sleeve 588. However, many of the other embodiments of Smith are directed to a circular axle tightly held in a welded sleeve within the trailing arm. Thus, Smith is suggestive not only of an axle trailing arm connection that allows limited movement, but it is also suggestive of an axle rigidly held in the end of the trailing arm by a sleeve which has been welded together to hold the axle tightly compressed therein. Since Appellants have admitted that the tapered relationship of Kittle is intended to prevent relative movement between the axle and the wheel hub, in our view, it would have been obvious to use the tapered relationship of sleeves as suggested by Kittle in many of the circular axle embodiments of Smith.

Stated another way, as our findings above have indicated, the sleeves containing the round axle embodiments of Smith represent an art-recognized teaching of the interchangeability of rigid mounted versus elastomer mounted axles. It would have been obvious to use the tapered teaching of

Kittle in a rigid axle as it is merely applying a known technique to a known device to achieve a predictable result. *KSR* at 1740, 82 USPQ2d at 1396.

In regards to Pitzer, we regard Pitzer's teaching of tapered sleeves in a bushing to be a teaching of general utility with respect to connecting rods or shafts and surrounding members. As such, it is our view that the disclosures of Smith and Pitzer would have rendered the subject matter of claims 1-5, 7-12, 14, 18 and 20 *prima facie* obvious to one of ordinary skill at the time Appellants' invention was made. This is combining prior art elements according to the method taught by Pitzer to achieve a predictable rigid coupling of axle to trailing arm. *See KSR* at 1739, 82 USPQ2d at 1395.

Appellants' arguments deal in detail with the Fig. 47 and Fig. 48 embodiments of the Smith patent. The Examiner's reliance thereon may have contributed to Appellants' selection of this argument. Since we rely on the general disclosure of Smith and not specifically on the disclosure of the embodiments of Fig. 47 and Fig. 48, the thrust of the rejection has been changed. Therefore, in an abundance of caution, we are designating our decision as a new ground of rejection under 37 CFR 41.50(b) and giving Appellants the opportunity to further prosecute the claims before the Examiner.

CONCLUSION

The rejection of claims 1-3 and 5-7 under 35 U.S.C. 103 as being unpatentable over Smith in view of Kittle is affirmed.

The rejections of claims 1-5, 7-12, 14, 18, and 20 under

35 U.S.C. 103 as being unpatentable over Smith in view of Pitzer is affirmed.

We designate this affirmance as a new ground of rejection under 37 CFR 41.50(b).

In addition to affirming the examiner's rejection(s) of one or more claims, this decision contains new grounds of rejection pursuant to 37 CFR § 41.50(b). 37 CFR § 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 CFR § 41.50 (b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner

(2) Request rehearing. Request that the proceeding be reheard under § 41.52 by the Board upon the same record

Should the appellant elect to prosecute further before the examiner pursuant to 37 CFR § 41.50(b)(1), in order to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

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If the appellant elect prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to the Board of Patent Appeals and Interferences for final action on the affirmed rejection, including any timely request for rehearing thereof.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED
37 CFR § 41.50(b)

vsh

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